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ABSTRACT

This document presents the evaluation plan and the evaluation activities and findings for the project described in VT 020 441 available in this issue. This project was designed to be an exemplary project using an environmental focus to establish career education in a Minnesota school district. Evaluation activities are divided into the components of management, in-service, and program. Under each component a number of evaluation activities are discussed. For the most part, evaluation consisted of documenting that the program was operational and that the staff was implementing proposal project strategies. Based upon meetings with the project staff, site visits at the project schools, and review of the quarterly reports the evaluation team concluded that the project was well managed and that staff were generally familiar with and committed to project goals. It was found that, in practice, career education and environmental education were taught as separate entities. Teachers rated their experiential activities (e.g., shop experience) highly. Some changes in student attitudes toward occupations were documented by pre-post attitudinal inventories. Specific findings and recommendations are detailed in narrative and tabular form. (MF)

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PROJECT NO. 1-361-0171
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FINAL FY2 EVALUATION REPORT
(INTERIM PROJECT REPORT)

EXEMPLARY VOCATIONAL EDUCATION PROGRAM BASED ON ENVIRONMENTAL STUDIES, K-14

JUNE 20, 1973

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FINAL FY2 EVALUATION REPORT
(INTERIM PROJECT REPORT)

EXEMPLARY VOCATIONAL EDUCATION PROGRAM BASED ON ENVIRONMENTAL STUDIES, K-14

An Exemplary Project in Vocational Education

Conducted by

Minnesota Environmental Sciences Foundation, Inc.
Minneapolis, Minnesota

in cooperation with

School District 281
Robbinsdale, Minnesota

June 20, 1973

Prepared by

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SECTION I

INTRODUCTION

A comprehensive third party evaluation through which the project staff and U. S. Office of Education personnel can assess the degree to which project objectives have been achieved is required of all Part D Public Law 90-S76 Exemplary Projects. USOE evaluation guidelines state that the evaluator should evaluate the effectiveness of both the project's administration and the career education program as it is operating in the school. These guidelines emphasize that process as well as product evaluation should be conducted for each project. It is intended that the evaluation of this project will provide feedback for project decision-makers that will enable them to strengthen the program. It is also intended that the evaluation will provide information to the U. S. Office of Education officials for accountability purposes.

1.1 PROJECT OVERVIEW

The Exemplary Vocational Education Program Based on Environmental Studies, K-14 ("Careers Project") is a joint venture in career education undertaken by the Minnesota Environmental Sciences Foundation, Inc. and Independent School District 281, Robbinsdale Area Schools. Both organizations provide co-directorship to oversee planning and evaluation in agreement with the objectives of Part D, Education Amendments of 1968. The Careers Project was designed to be an exemplary project which uses an environmental focus to establish career education in grades K-14.

The following student and community needs were identified and serve as the basis for the project:

1) Elementary students needed to be exposed to positive attitude development toward the working world.
2) Occupational exploration needed to be available to junior high school students.
3) Complete career information needed to be available in senior high schools for teachers and students.
4) Work experience cooperative coordinators needed to be utilized by the entire school system for their expertise in special fields.
5) Drop-outs are in most desperate need for career counseling needed to provide opportunity for information or assist in job application skills.

Major goals of the Careers Project are:

1) To influence positive attitudinal changes as evidenced by behavioral changes in students toward environment.
2) To provide students with a background of experience and information leading to their career development.
3) To interface, when appropriate, environmental components with career development components.

The project, which is in its second year, has four major components or phases. They are:

a) Elementary program phase. In this phase, 53 elementary teachers in four schools are involved in attempting to relate career information and environmental attitudes in all appropriate areas of the

curriculum. The program allows children in selected elementary schools to become familiar with a variety of occupations by drawing upon all community resources, particularly those from the Minnesota Environmental Sciences Foundation. The teachers went through a one-week summer in-service workshop in preparation for this year's project activity. One-day workshop sessions are also conducted during the school year.

b) Junior high phase. The purpose of this phase is to expand the student's knowledge of occupational opportunities and to add depth to the student's ecological awareness in relation to academic areas and career opportunities in the community. Sandberg and Robbinsdale Junior High Schools have initiated Industrial Education programs in the World of Manufacturing and in the World of Construction. Two instructors teach these courses and a third industrial education instructor in the district has become interested in exploring this program for his school.

Hosterman Junior High School has established a program which provides pupil potentials labs (a resource for all pupils to explore their interests in careers), a resource directory of instructors and community people who are knowledgeable of identified fields, a family model simulation, and a paraprofessional aide to maintain and operate the director at the center.

c) Senior high school phase. The senior high school career program is multifaceted in that a variety of approaches to career education exists within the three senior high schools within the district.

The program attempts to provide information on educational patterns which are necessary and desireable for occupations; provide vocational counseling and guidance information to all students with respect to their interests, attitudes and abilities; provide job availability information for those students who seek entry level occupations; and provide work experience and on-the-job situations. Armstrong Senior High School has established a career resource center including a resource career consultant. The career resource center has initiated group sessions for information assistance in career decision-making. Cooper High School has also established a career resource center. Their center utilizes an audio-visual individualized exploration experience and assistance with career decisions. Robbinsdale Senior High School has established a program in which one class period per week is used in the integration of environmental career-related occupations for work experience students.

d) Community Careers Center phase. The CCC has been established with the community as the resource for out-of-school youth and secures career and education information. Its role is to further fulfill the school's obligation to the community through a formal extension of the services into the community. A cooperative relationship exists between the existing guidance department in the high schools and the center for identifying and providing information on drop-outs.

1.2 THE EVALUATION PLAN

Educational Management Services, Inc. (EMS) of Minneapolis, Minnesota, had contracted with the Minnesota Environmental Sciences Foundation to evaluate

this project. EMS is a private, publicly-held corporation which includes among its services the evaluation of federally and foundation-funded innovative educational projects.

An evaluation design plan and contract for the current 1972-73 school year were developed for the project and approved by appropriate foundation and federal officials. This report is last of three major project evaluation reports prepared by EMS during this project year. This document contains the results of evaluation activities conducted throughout the project year. Primary emphasis is upon the findings of the final phase of FY2 evaluation activities.

Figure 1.1 is an evaluation plan summary chart which summarizes the information regarding planned evaluation activities for the three project components: management, in-service and program. Included in the information on the chart is: 1)the target group - the group on which the evaluation activities focus; 2) baseline data - data documents related to the planned activity; 3) the instruments used for the particular evaluation activity and the date by which it should be completed; 4) data collection procedures - including the person or persons responsible and the dates collection will occur; 5) the analytic technique used to analyze and/or summarize the data that has been collected; and 6) the report period for which the evaluation activity will be conducted.

Generally, baseline data is furnished by the project staff to the evaluation team. The project staff is also responsible for data collection as it relates to administering particular assessment of survey instruments. The evaluator, on the other hand, is responsible for developing and/or modifying instruments. The evaluation team is also responsible for analyzing the data and interpreting its results. Reports are prepared for the project staff by the evaluators.

Figure 1.1

EVALUATION PLAN SUMMARY CHART

DATE: September 1, 1972 EVALUATOR: Educational Management Services, Inc. PROJECT: Exemplary Vocational Education Program Based on Environmental Studies K-14

EVALUATION COMPONENT/ACTIVITY	TARGET GROUP	BASELINE DATA	INSTRUMENTATION		DATA COLLECTION		ANALYTICAL TECHNIQUE	REPORT PERIOD		
			INSTRUMENT	DATE(S)	PERSON RESP.	DATE(S)		IMPLE	INTER	FINAL
1. MANAGEMENT COMPONENT										
1.1 Provide technical assistance for development of project plan	Project Staff	Project Proposal						X		
1.2 Monitor project plan	Project Director	Project Plan			Evaluator	Each Visit	Summary & Documentation	X	X	X
2. IN-SERVICE COMPONENT										
2.1 Analyze summer in-service workshop survey	Teacher Participants	72-73 Survey Summaries			Project Staff	8/30/72	Statistical Summary	X		
2.2 Interview teachers and project staff RE: in-service	Teachers & Project Staff	Project Plan	Interview Form	10/1/72	Evaluator	Each Visit	Summary	X	X	X
2.3 Assess teacher attainment of "contract" expectation	Teacher Participants	72-73 Teacher expectations list	Teacher Objective Checklist	5/1/73	Project Staff	5/30/73	Statistical Summary			X

EVALUATION PLAN SUMMARY CHART

EVALUATION COMPONENT/ACTIVITY	TARGET GROUP	BASELINE DATA	INSTRUMENTATION		DATA COLLECTION		ANALYTICAL TECHNIQUE	REPORT PERIOD		
			INSTRUMENT	DATE(S)	PERSON RESP.	DATE(S)		IMPLE	INTER	FINAL
3. PROGRAM COMPONENT										
3.1 Monitor Programming Process	Project Staff	Project Plan Interim Report			Evaluator	Each Visit	Summary & Documentation	X	X	X
3.2 Assess K-6 ecological related job awareness	Elementary Students	71-72 elementary survey summary	K-3 & 4-6 Affective Instruments	10/1/72	Project Staff	10/1/72 5/30/73	Pre-Post Comparative Analysis	X		X
3.3 Assess Jr. Hi career awareness & exploration program	Jr. Hi Students		Jr. Hi Career Affective Instrument	10/1/72	Project Staff	10/1/72 5/30/73	Pre-Post Comparative Analysis	X		X
3.4 Assess Sr. Hi career exploration program	Sr. Hi Students	71-72 Student Interest Area Survey	Sr. Hi Career Affective Instrument	10/1/72	Project Staff	10/1/72 5/30/73	Pre-Post Comparative Analysis			X
3.5 Provide technical assistance for development of follow-up reports	Student Participants	Verify Reports S.D. #281 Data Center	Report Formats and System Design	4/1/73	Project Staff	Continuous	Summary			X

SECTION II

EVALUATION ACTIVITIES AND FINDINGS

As outlined in the evaluation plan, the evaluation activities are divided into three components. They are the management component, the in-service component, and the program component. Under each component, a number of evaluation activities are listed which were to be completed during one or more of the three report periods.

For the most part, evaluation during the implementation and interim report processes consisted primarily of documenting that the project was operational and that the staff are implementing proposal project strategies. This final FY2 project report contains the results of process evaluation activities as well as product outcomes as assessed by specially-constructed attitudinal instruments.

In the following sections, the evaluation activities for each component are discussed. The proposed evaluation activity for a specific component is noted and comments are made regarding the data that have been collected. Some of these findings are based upon site visits conducted during the implementation and interim phases. Data displays usually appear along with the narrative following an evaluation activity. However, when tables are lengthy they have been placed in an appendix and referenced to in the body of the report.

2.1 MANAGEMENT COMPONENT

The Careers Project has two co-directors representing the Minnesota Environmental Science Foundation and School District 281. However, project planning and management are the responsibility of the designated project coordinator who is a full-time staff mamber. The evaluation team's primary contact was with the project coordinator.

Evaluation Activity 1.1 - *"Provide technical assistance for development of project plan"*

In an early site visit, the evaluator discussed the format for a management plan and time schedule with the project coordinator. During the early part of the project year, the coordinator developed a set of project goals (see Exhibit A). There were three types of goals stated for each component. They were major student goals, major instructional goals, and major project goals. Within each component or phase, there are a number of project year objectives stated as well as the strategies for implementing these objectives. This document served the purpose of determining what the specific plans were for the current project year. However, it did not have a definite timeline or indicate the staff assigned to the specific activities related to each strategy.

Evaluation Activity 1.2 - *"Monitor Project Plan"*

During the site visits, the evaluators used the goal document discussed above in determining what project strategies had been or would be implemented. According to the staff members who were interviewed, all of the strategies to attain major goals for each phase had been implemented. More discussion

of the exact program strategies will be discussed in a later section of this report. The primary documentation of the implementation of program strategies appears in narrative following Evaluation Activity 3.1.

2.2 IN-SERVICE COMPONENT

A one-week in-service session was held for the participating 53 elementary teachers from the four elementary school programs. At the in-service session, which was held at the Minnesota Environmental Science Center, the participants had a variety of experiences. Included among the workshop activities were shop experiences, grade level meetings, unit work, audio-visual presentations, and discussions by a number of resource persons. The participants signed an "expectations" agreement for the 1972-73 project year. This agreement delineated project activities which the teachers will perform during the 1972-73 school year.

Evaluation Activity 2.1 - "Analyze Summer In-Service Workshop Survey"

At the completion of the elementary teacher's workshop, an evaluation form was administered to the participants. They were asked to rank the eight major workshop activities and to comment on those things they would like to see added to the program. They were also asked what kinds of activities they expected to engage in during the project year (see Exhibit B).

Table 2.1 gives a ranking of the workshop activities by teacher participants. Shop experiences received the highest ranking. Experiential kinds of activities were rated higher than the presentations made by the resource people and the presentation on last year's project. Generally, the participants recommended workshop experiences in which they were directly involved such as the shop experiences and the unit work. The kinds of experiences

planned for the project year varied considerably.

TABLE 2.1
RANKING OF WORKSHOP ACTIVITIES
BY TEACHER PARTICIPANTS
(N=53)

ACTIVITY	AVERAGE RATING	RANK
Shop Experiences	2.0	1
Unit Work	3.8	2
Grade Level Meetings	4.2	3
Values Clarification	4.9	4
Career Interview Game	5.7	5
Resource Person - Community Resources Director	6.0	6
Resource Person - Entomologist/Rock Collector	6.1	7
Audio-Visual Presentation	6.5	8
Current Problems Exam	7.1	9
Resource Person - Vocational Ed. Director	8.5	10

Evaluation Activity 2.2 - "Interview Teachers and Project Staff"

During each site visit, the evaluators interviewed one elementary teacher within each school and two of the project staff. Most of the discussions related to the program component which is discussed in the next subsection; however, staff reaction to the in-service component was also elicited. The teachers confirmed that they had participated in the program and that the proposed activities had occurred. For the most part, they were supportive of

those in-service activities in which they had actively participated. Two of the teachers felt that the workshop goals could have been made more explicit to them. The teachers commented favorably about the accessability of project staff to help them in program implementation. The level of interest and participation has varied somewhat within the schools and between instructors within the schools.

Evaluation Activity 2.3 - "Assess Attainment of Contract Expectations"

Each of the participant teachers were asked to sign an "expectations" agreement. (see Exhibit C). This agreement delineated the activities which they were to perform during the project year. It also listed the type of support to be provided by the project staff.

At the end of the project year, a sample of fifteen teachers were interviewed to determine whether or not they had fulfilled the expectations. Table 2.2 displays the responses of the interviewees to questions relating to each expectation.

A majority of teachers indicated a fulfillment of all expectations except number 6, which related to inviting another teacher into their classrooms at least once per semester and number 7, which dealt with whether they had involved students in an environmental care activity. All of the teachers interviewed answered questions 3, 9, and 11 positively.

2.3 PROGRAM COMPONENT

The major evaluation activity in this project relates to the assessment of the ecology-related job awareness information and career exploration components of the program. This evaluation was accomplished through the use of

TABLE 2.2

TEACHER RESPONSES TO QUESTIONS
REGARDING CONDITIONS OF "EXPECTATIONS AGREEMENT"
(N=15)

QUESTION	RESPONSE YES	NO
1. Did you use two resource people in your classroom during the year?	11	4
2. Did you conduct one career related field trip during year?	13	2
3. Did you relate career education and environmental awareness to all disciplines in a deliberate way at least twice in the year?	15	0
4. Did you spend a minimum of five hours on each career/environment unit?	12	3
5. Did you establish a Career Development group in your building and meet twice a semester to exchange ideas and offer support?	4	11
6. Did you invite someone (teacher) into your classroom during environmental education and/or career education activities at least once a semester?	7	8
7. Did you get students involved in an environmental care activity once during the year?	15	0
8. Did you engage the class in some shopwork activity after becoming familiar and comfortable with tools and procedures through assistance of Industrial Arts Consultant?	9	6
9. Did you receive $25.00 per day, honorarium for five-day summer in-service workshop?	15	0
10. Did you receive planning assistance for units?	13	2
11. Did you receive aid through help and support for project activities?	15	0
12. Did you receive assistance in arranging for materials and supplies for units?	12	3
13. Did you receive financial support for related field trips?	11	4
14. Did you receive experience in developing a career education concept in the elementary school?	14	1
TOTAL	166	44

instruments that had been developed by the evaluator team for the assessment of career interests and attitudes at four different levels: Kindergarten through third grade (primary), fourth through sixth grade (intermediate), seventh through ninth grade (junior high school), and tenth through twelfth grade (senior high school), A pre-post statistical analysis was conducted to determine changes in item responses.

Another evaluation activity for this component was documenting the implementation of programs. The next section of this report discusses this *Evaluation Activity 3.1 - "Monitor Programming Process"*

To perform the interim phase and final phase evaluation activities, site visits were made to each school involved in the project. During these site visits, an attempt was made to get information regarding a number of aspects of the program through interviews with both students and staff. The following are some of the areas in which the evaluation team attempted to assess the project:

. Student Participants - Of interest was the basis for selection of students; the number of students who actually participated in the program to date; and whether or not there was some accurate means of accounting for student participants during the project year.

. Project Staffing - The basis for selection and/or recruitment of staff; the training and in-service arrangements for the staff; and the extent to which staff were performing the project strategies were evaluated.

. Facilities - The evaluators attempted to determine what special facilities existed and the adequacy of these facilities in terms of the intended project strategy.

. Materials/Equipment - Of interest in this component was the special materials and equipment required for project purposes. Subsequent evaluation activities will attempt to assess the replicability and cost of these special resources.

. Instructional Strategies - The evaluation team attempted to assess the project strategies in terms of the stated goals and objectives for the component. The impact and integration of these activities with the rest of the program was also assessed.

3.1.1 Elementary School Phase

Students from kindergarten through sixth grade were involved in the program. No specific selection process or criteria was used for assignment of the students to the project. The teachers to whom they were assigned had volunteered to participate in the program (see Table 2.3).

TABLE 2.3

NUMBER OF CAREER PROJECT TEACHER PARTICIPANTS BY SCHOOL

GRADE LEVEL	SCHOOL			
	SUNNY HOLLOW	PILGRIM LANE	NORTHPORT	NEW HOPE
Kindergarten		1	2	1
Grade 1		2	1	4
Grade 2	1	3		2
Grade 3		3	5	2
Grade 4	2	5	2	2
Grade 5	1	3		2
Grade 6	1	4	1	
TOTALS	5	21	11	13

Fifty-three teachers were involved with the Careers Project. Each of the teachers, after having been informed of the program and attending summer workshops and in-service sessions, volunteered to participate. While there was no formal in-service during the year, teachers used resource personnel from the Environmental Science Center extensively.

Based upon estimates that there are 25 to 30 assigned to each of the teachers at the designated grade levels in the school listed in Table 2.3, approximately 1,250 to 1,500 students are involved in some aspect of the project.

For the most part, the teachers are directly responsible for implementing the program. In most settings, support may be drawn from the remaining staff and school personnel. Due to the impact of the program in one school, the

building principal designated a woodworking area in a multi-purpose activity room. He also secured the services of an intern from the Industrial Arts Department at the University of Minnesota to give assistance at regularly scheduled weekly sessions.

In addition to the teachers, community resources representing various occupations and job clusters conducted discussions with the classes. Questions were raised and answered about entry into the jobs, activities or duties performed, salary and problems associated with each job. A wide range of occupations were presented in this way. Among them were rock collectors, engineers, housewives, photographers, contractors, bus drivers, policemen, journalists, artists, city mayors, surveyors, advertisers, hospital personnel, radio and television personnel, dentists, firemen, salesmen and florists.

Self-contained classrooms are the major facility used in carrying out the program activities. At most of the elementary schools, work areas for industrial arts projects and woodwork experiences are designated. Often, work tables were set up within the classroom or students were scheduled into work areas. Tools and materials were provided for many activities by the Minnesota Environmental Science Foundation, Inc. Other materials were donated by parents and by community agencies.

Some of the materials used with the project were multi-media related career educational filmstrips, tapes or cassettes and transparencies that were designed to be integrated into the teaching units. Usually these materials are obtained through the Audio-visual Department of the school district or from the school library. Schedules are made for the rotation of the tools and

materials within each school. Some of the environmental education units required the use of weather-detecting materials which are also provided by MESFI.

Content for each grade level consisted basically of several units of work specifically designed either by the Robbinsdale Schools or MESFI for implementing the CE/EE program. The units are as follows:*

Kindergarten - The School Environment Nature Hunt

Grade One - Our Family and Its Functions

Grade Two - From Seeds to Cereal - Our Neighborhood

Grade Three - Wind, Salt, Snow and ice

Grade Four - Man and His Environment

Grade Five - Minnows and Models
Trash is Taking Over

Grade Six - Man's Habitat
Urban Streams

**Grade Seven - World of Manufacturing

**Grade Eight - World of Construction

There were two basic strategies employed by teachers implementing the program at the elementary level: 1) to use EE units provided by MESFI; or 2) to use EE units as vehicles to bridge careers education from curriculum.

The units previously mentioned were used by the teachers. A variety of activities were implemented to enhance the environmental education units and situations were created in which positive attitudes were developed towards all occupational fields. For example, at one school, the bus driver had been harassed and disruptions frequently occurred on the bus. The driver was invited to speak to one of the classes. During the discussion, the job require-

*See Table 3.9 for a summary of program information
**Also discussed in Section 3.1.2

ments were mentioned along with information or road tests required and his responsibilities toward the children on the bus. After the discussion, the students discovered the importance of the bus driver's role within the school. Thus, a positive attitude developed and the problems diminished greatly on the bus.

Environmental problems provide pivotal points to illustrate the skills needed for solutions from the various job clusters. For example, one class studied traffic pollution. A field trip was taken to the Highway Department where the students acquired insight into the type of jobs needed to regulate traffic and solve other situations connected with traffic problems. In a number of classes, field trips were made to Jonathan, a planned community, to investigate the nature of city development. Some schools used clusters in conjunction with either social studies or science units. In one school a "law cluster" incorporated field visits to municipal courts, and discussions with related professionals including an attorney, policemen, a detective, and an ambulance driver. Another interesting unit incorporated career information about construction with environmental topics by having students visit many construction sites and then building a small scale town. A unit on municipal government included discussion with a variety of civic officials and the conduct of a city government using several classrooms as the constituency.

Integration of the units developed for use at the elementary level into the regular program served to reinforce language arts skills, observation skills and as an aid to teach techniques needed for problem solving. Group projects provided an opportunity for students to express creativity. Field trips allowed students to become acquainted with major study areas in an interesting, realistic way.

Overall, teachers expressed extremely positive attitudes toward the program. They said that these kinds of units and activities are considerably more relevant than traditional studies, that students were learning with much greater interest, and that, as professionals they had been challenged. Support from the Environmental Science Center, from parents and from community resources was important and had been freely given. Teachers also stated that these types of units were easily assimulated into the curriculum.

3.1.2 Junior High School Phase

Hosterman Junior High School

During the course of the first project year, most of the students in the school have been exposed to aspects of the project primarily through activities in science, social studies, and language arts classes. Additionally, students utilized the materials in the Pupil Potentials Lab for career information and exploration purposes have been reached by the project. A log of students who utilized the lab was maintained. It was estimated that 60% of the student body has utilized the Pupil Potentials Lab.

Seventy-five teachers, the majority of the teachers in the school, have become familiar with the project through various workshops or contact with the project staff. Two workshop sessions on career education concepts were conducted at district teacher workshops. Teachers with whom the project was discussed reacted very favorably to the project activity. The project is coordinated by the head of the counseling department of the school. A full-time staff member, who is a certificated teacher, is primarily responsible for conducting project activities and maintaining the Pupil Potentials Lab.

Staff members seem to be well organized and have an excellent perspective of the scope of the program.

A small room has been utilized as a resource area for the Pupil Potentials Lab and other project materials. It appears to be somewhat inadequate for the intended purposes. The staff has also secured space and materials for the Community Contour House project, an interdisciplinary effort involving most eighth and ninth grade students. Most of the project written materials were either free or relatively low cost.

In addition to the career and environmental education emphasis as it appears in the curriculum, there are a number of inter-disciplinary kinds of activity that the students are pursuing, including the production of a directory of occupational experiences of staff members. The interpersonal student staff communication involved with this activity has helped develop a warm and supportive school climate. Students also interviewed local businesses and industries in regard to the qualifications for specific occupations and available jobs of a part-time or summer nature. There is a different emphasis at each grade level. The seventh grade curricular emphasis is upon the family with interest in family roles, jobs and communication; the eighth upon the home, including the selection and building of a model home; and the ninth upon the community, involving the development of a table model of one of the local communities. All of the activities emphasized career development and exploration, self-awareness, community involvement and developing inter-personal relationships.

Overall, the objectives appear to be met. The commitment and enthusiasm of the staff people was very apparent. Based upon three site visits, it appears

that this junior high school has done an excellent job of integrating the career education concept into their overall program.

Sandberg and Robbinsdale Junior High Schools

At the junior high school level, the programs focused mainly on curricular materials developed in Industrial Arts. The Industrial Arts Laboratory was the site of learning activities. The major strategies employed by teachers at this level were either to teach the World of Construction or the World of Manufacturing. McKnight's curricular materials are being used. These materials include a textbook and student's workbook, transparencies, filmstrips and tapes. Adaptation to a quarter or semester was needed since the materials were written for a year-long program.

One junior high school uses the World of Construction. Students enrolled in the classes learned and applied basic construction skills. Principles of home building are emphasized and groups are designated to construct a house module. A variety of construction careers were explored as well as industrial organization including unions, foremen, etc. Completion of the house module was the culminating project.

The World of Manufacturing served as the major project activity at the other junior high school. McKnight's curricular materials were used as the basic program component. The approach taken was to develop students' understanding of manufacturing. A corporation was formed, after the basic understandings were learned. Shop foremen were selected, groups were formed, products selected, and stock sold to finance manufacture of the products. Student work summaries were kept and hourly wages paid. Completed products were advertised and sold. With these activities completed, the firm is dissolved. Students were responsible for completion of each phase of the

manufacturing process. Enthusiasm was high and competition was keen. Many students voluntarily attended class sessions on Saturdays.

Each of the teachers interviewed felt that the program had created interest and enthusiasm for the students involved in the program. Impact on the total school programs varied. Both teachers are interested in pursuing projects on a multidisciplinary basis next year incorporating science, social studies, art and language arts.

Career project activities required no special scheduling. No timetable for classroom activities was needed. Speakers, field trips, and other out-of-school activities were arranged by teachers and the Community Affairs Office. Financing of the field trips was handled by the MESFI.

3.1.3 Senior High School Phase

Because of the diverse nature of the senior high project strategies, each of the participating senior high school projects are discussed separately.

Armstrong Senior High School

To date, a large number of the students at Armstrong have been exposed to the program. As part of the orientation through the English classes for the sophomore class, about 600 students were made aware of the Career Resource Center at Armstrong High School. Another 150-200 students are involved in the cooperative vocational programs and have become familiar with the resource center because of class assignments which require their utilizing materials in the center. Counselors use the center as an occupational information reference center. About 100 applied math students have used the center and Career math unit. The director of the center also keeps a daily account of all students who drop in to obtain information regarding careers. This record, graphically

displayed shows a dramatic increase over the course of the year. Instruction on how to apply for jobs is also provided. Several drop-outs have been referred to the center by the Career Center. The project is staffed by one full-time staff person who is assisted by a part-time student assistant. Staff members in the guidance department as well as the majority of the faculty have been oriented to the materials at the center.

The major facility for the resource center is a room with approximately 500 square feet. It is adjacent to the counseling department. The majority of the materials are free and are supplied by employment agencies and post-secondary training institutions and agencies.

The major strategy is to provide access to career information by making available considerable materials on careers. These materials are indexed by a very comprehensive cross-referencing system. The students are also assisted by the director or the staff assistants in the location and circulation of these materials. From conversations with a number of students and the teaching staff, it appears that the approach used at Armstrong High School is very successful and that the staff is responsive and creative in its efforts to disseminate career information to the student body.

Cooper Senior High School

The career resourse center at Cooper Senior High School is based on students individually accessing the multi-media materials which contain information on specific careers and career clusters. In addition to students who come in on their own, career materials have been offered through career units and general mathematics classes as well as the cooperative vocational programs. A system has been set up whereby the number of students who access the materials

in the counselor center is determined at three different points in time during the school year.

The only staff person assigned to the Cooper component is the head of the counseling department who has taken this on as an extra assignment. She is assisted in some of the clerical and distribution activities by members of the regular secretarial staff.

No special facilities are being used for the project activities. Existing counseling area space is used to accommodate the project. Approximately $2,000 of audio-visual equipment has been purchased through project funds. This represents the only budget expenditure by this project. The majority of the written materials have been supplied by colleges and area vocational-technical institutes throughout the state. A series of career pamphlets have also been supplied by the Department of Manpower Services. Given that many written materials dealing with careers have little appeal for student consumers, a concerted effort has been made to find high-interest relevant audio-visual materials.

The primary strategy is to have students utilize the project resources as they seek career information. These resources are intended to supplement the information in career counseling they receive from members of the guidance department.

Although the primary objective appears to be met, there is not the level of project resources that there is at the other schools. It will be unrealistic to expect the project effect to be comparable. Hopefully, the cost-benefits of the project will be comparable. In addition, the program has received considerable local attention as an exemplary career guidance center.

Robbinsdale Senior High School

Robbinsdale High School has a relatively small number of students affected by the project, but these students have the most concentrated program of any of the schools. The 72 students who were in the program were selected by a committee consisting of the counselors, the work experience coordinators and teachers. These are essentially students for whom the traditional school experience has been inappropriate. On the job experience with career counseling appears to be more beneficial. They are under the continuous monitoring of the project staff. There is no attempt to provide career information school-wide as there has been in the other two senior high schools.

Two full-time work experience coordinators are paid through project funds. The department chairman serves as a facilitator and the project director as a resource person in terms of materials related the the project.

A room used both as a classroom and as a resource center is dedicated to the class and individualized study conducted by the students. Although a number of career-related materials have been obtained, there are no additional materials or equipment purchased.

The students are divided into four classes. The classes are individualized and student-centered in nature. Classes emphasize values clarification and the identification of individual strengths and skills. A number of field trips and special class activities have been conducted. In addition to the regular day program, a night school has been started for drop-outs and students who are short credits. Entry-level and part-time job placement information is also available to student participants.

It would appear that the major senior high phase objectives are being met through the strategies employed. Because of the uniqueness of the students

who are selected for the program, it has been very difficult to coordinate career education with environmental emphasis. To date, the staff has felt it has not been opportune to pursue the specifics of career information but, rather, initially attempt to modify student attitudes towards themselves and the world of work.

Community Careers Center

This is an exemplary counseling and careers program for persons of all ages over 16. It is primarily a drop-out counseling service but also assists adults returning to the labor market after some time, for example, housewives wishing to supplement the family income.

In addition to counseling, the center establishes contacts and referrals to other support agencies and with potential employers. The Center also does some aptitude testing. Most of the clients are referred from the high schools, but publicity in the district newsletter and in the Minneapolis Star and Tribune have increased the number of clients from outside sources.

In the past year, the Center counseled with 457 clients with an average number of four contacts per person.

The primary strategy is individual assistance to clients by examining value systems and priorities, establishing strengths and interests and agreeing upon individual goals and objectives. Although no quantitative evaluative data is available at this time, it would appear that the Center has been very successful in placing clients in appropriate work and school situations.

The Center is located in a small municipal building within the district and is staffed by two full-time counselors. This location, away from the traditional school setting is conducive to the informal, supportive atmosphere

which may be partially responsible for the program's success.

Evaluation Activity 3.2 - *"Assess K-6 Ecology-Related Job Awareness"*

For this evaluation activity, two instruments were developed. The instrument for kindergarten, first, second and third graders was an individually administered instrument that assessed awareness of ecology (pollution) and the attitudes toward the world of work. The instrument was displayed in the interim report. The items from the instrument are contained in Table 3.1. A total of sixty K-3 students were randomly selected from the four elementary schools during both the pre and post testing periods. Basically the students reacted to pictures and the test administrator recorded their responses.

Table 3.1 in the appendix contains a summary of their responses to the items. Students in the sample displayed a high awareness of causes of pollution as evidenced by the per cent selecting the correct pictures in the instrument. Among the other apparent findings from the career section were that the students: 1) thought housewives had jobs, but weren't paid; 2) did not associate race with income; 3) regarded doctors as having more important jobs than farmers; 4) associated college with best job and most money; and 5) had mixed reactions as to the possibility of a woman being a doctor or bus driver.

In a pre - post comparison of the K-3 student responses to the pictorial instrument, 16 per cent more of the students in the post sample identified cars as more likely to cause pollution than bicycles; 25 per cent more felt the doctor made more money than the farmer; 17 per cent more students felt that the artist had a job; 27 per cent fewer students felt the artist had an important job; and 23 per cent more felt the stock broker and not the mechanic

had to go to college for his job. For the most part these changes would appear to be consistent with project objectives.

Random samples of about ninety 4-6 graders were given copies of the 4-6 version of the inventory during the fall (pre) and spring (post). This instrument was constructed to assess their attitudes and interests regarding the enviroment and items were also used on the junior high and senior high instruments. The items on the inventories were structured to reference specific subscales of a "taxonomy" of topic clusters and or scales related to careers, the world of work, and the environment. Table 2.4 contains a listing of these scales and subscales. This taxonomy was used for the instruments which were developed for each level. Subsequent tabies which appear in this report have the items categorized by the five subscales shown in Table 2.4.

A pre-post comparative analysis was conducted between the item responses for the two samples. This pre-post analysis is an attempt to determine changes that occured in student attitudes because of the program.

Table 2.5 is a pre-post comparative summary of the Inventory items for which there was a ten per cent or greater change in number of students agreeing with the item. According to this analysis, the 4-6 population showed a 10 per cent or greater change on nine of the 34 test items. No attempt is made to interpret positive or negative effects because of the attitudinal nature of the items. Project staff will necessarily have to determine if the changes are desirable and consistent with implicit project objectives. It would seem however, that the changes in items 1, 3, and 5 under the subscale II would not be congruent with project goals.

Table 2.4

A "TAXONOMY" OF TOPICS RELATED TO
CAREERS, THE WORLD OF WORK, AND THE ENVIRONMENT

Subscale I. Attitudes Toward Work

- A. General Attitudes
  - 1. (Positive)
  - 2. (Negative)
  - 3. (School and Work)
- B. Attitudes about Job Selection
  - 1. (Certainty about Job Selection)
  - 2. (Uncertainty about Job Selection)
  - 3. (Indifference about Job Selection)
- C. Attitudes about Job Mobility
- D. Attitudes about Job Rewards
  - 1. (Financial)
  - 2. (Idealism)
  - 3. (Personal Satisfaction)
  - 4. (Matching Capabilities)
  - 5. (Degree of Difficulty)
  - 6. (Working Conditions and Mobility)

Subscale II. Personal Job Preparedness

- A. Personal Familiarity with Jobs
- B. Knowledge of Sources of Information about Jobs
- C. Certainty about Future Job
- D. Personal Job Exploration
- E. Specific Plans for Work or Training
  - 1. (Uncertain)
  - 2. (Educational Plans)

Subscale III. Knowledge of the World of Work

- A. General Knowledge of the World of Work
- B. Knowledge of Job Changes and Mobility
- C. Knowledge of Job Characteristics
  - 1. (Job Clusters)
  - 2. (Job Characteristics)
- D. Knowledge of Job Preparation and Selection
  - 1. (Preparation)
  - 2. (Getting a Job)

Subscale IV. Environment

Subscale V. Environment and Careers

TABLE 2.5

A PRE-POST COMPARATIVE SUMMARY OF INVENTORY ITEMS IN WHICH THERE WAS A TEN PERCENT OR GREATER CHANGE* IN THE NUMBER OF STUDENTS AGREEING WITH THE ITEM

SCALE/ITEM	GRADE LEVEL OR SCHOOL 4-6	7-9	ARMSTRONG	COOPER
Attitudes Toward Work				
1. The only reason people work is for money.	-	+		
2. People feel good after working hard at their job.		-	+	+
3. Work is boring		+		
4. Every grown-up wants a job.	-			
5. A job where a person does a lot of thinking is more important than a job where a person works with his hands.		+		-
6. I will choose an occupation which allows me to do what I believe in.				+
7. If I have an important job, the amount of money I earn doesn't matter very much.				-
8. Working will probably be a lot better than going to school.			+	
9. I am not looking forward to working.				+
10. The work I do in school has little to do with the jobs I may have after high school.				-
Personal Job Preparedness				
1. I would like to know more about the jobs grown-ups have.	-			
2. School is a good place to find out about jobs.		-		-

*A plus sign is used to indicate an increase in % of agreement, a minus sign indicates a decrease.

SCALE/ITEM	GRADE LEVEL OR SCHOOL 4-6	7-9	ARMSTRONG	COOPER
Personal Job Preparedness Cont'd.				
3. A person can get an important job even if he doesn't go to college.	-			
4. It is important to have explored a number of careers by the time you finish high school.		+		
5. No one in my school has been designated to help me find out about careers.	-			-
6. In making an occupational choice, you need to know what kind of person you are.				+
7. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.				-
8. Because of school influences, I know more about my interests and abilities than I knew last year.				-
9. I hope to receive more career information in classes this year.			-	-
10. I have no idea what kind of job I want.			+	
11. You get into a career mostly by chance.			+	+
12. There are persons in this school who will help me learn about careers.				+
13. We rarely talk about careers in my classes.				-
14. A person has to have a college degree to get an important job.				-
Knowledge of the World of Work				
1. In our country, everyone has to work.	-			
2. There are more jobs for men than there are for women.	-	+		
3. No one could know all of his job choices because new careers are created all the time.	-			

SCALE/ITEM	GRADE LEVEL OR SCHOOL 4-6	7-9	ARMSTRONG	COOPER
Knowledge of the World of Work Cont'd.				
4. Once you choose a job, it is still likely that you will change to another one sometime later.			+	+
5. Every legal job is necessary and dignified in some way.			+	+
6. It is probably just as easy to be successful in one occupation as it is in another.				+
7. In our country, most people can find jobs they will like.			±	+
8. We have unemployment in this country because there are not enough jobs for everybody.				-
Environment				
1. Teachers should spend more time teaching about pollution.	-	+	+	
2. Students can help stop pollution by returning pop bottles to the store so they can be used again.		-		
3. We should have strong legislation to protect our natural resources.				+
4. A housewide can do little to help stop pollution.				-
5. We need not worry about how we use the environment because natural processes restore it.				-
6. Most of my friends don't care if they pollute our air and water.				-
7. Many companies have to be told by the courts not to pollute our air.				+
Environment and Careers				
1. We need forest rangers to protect our trees.	-			

SCALE/ITEM	GRADE LEVEL OR SCHOOL. 4-6	7-9	ARMSTRONG	COOPER
Environment and Careers Cont'd.				
2. People who make and sell cars seem to not care that cars cause pollution.				-
3. Bus drivers should encourage people to ride buses because they help stop pollution.	+			
4. Politicians can make laws about pollution but it will not help.		+		-
5. Garbage men do important environmental work.		-		
6. People should be encouraged to ride buses because they help stop pollution.			+	+
7. If I worked for a company that carelessly polluted a river, I would work to change its policies.				-

NOTE: Not all of these items appeared on each form of the survey.

The per cent change in responses related to descriptors of various occupations are shown in Tables 2.5 to 2.9. Generally, fourth through sixth grade students showed a decrease in the per cent describing various occupations as rich, smart, male, important, or educated. Most significant decreases were in the per cent of students who saw factory workers or ecologists as rich; singers as intellegent; policemen or ecologists as male; truck drivers, secretaries or farmers as important or factory workers, ministers, or singers as educated. These changes are all relative to the per cent of the total describing a particular occupation with a particular characteristic. Generally, they would seem to indicate that as students learned more about occupations they were less likely to describe it in terms of either extreme of a descriptor.

Tables 3.2 and 3.3.1 to 3.3.5 in the appendix contain pre-post comparative summaries of the responses of fourth, fifth and sixth grade samples to An Inventory of Attitudes Towards the World of Work and the Environment. More detailed information can be gained from these tables. It was intended that the key findings be shown in summary tables 2.4 and 2.5 to 2.9.

Evaluation Activity 3.3 - *"Assess Junior High Career Information and Exploration Programs"*

To assess the junior high component of the project, a more advanced version of the Inventory was used. Four classrooms of seventh, eighth and ninth grade students were randomly selected during the pre and post testing from the junior high schools which were involved in the Careers Project. This sample consisted of a total of 99 students. As was true for the 4-6 inventory, data was also collected and prepared for computer analysis by

TABLE 2.5

A PRE-POST COMPARISON OF THE PERCENT OF CHANGE* IN RESPONSES RELATED TO WEALTH (RICH) DESCRIPTORS OF SELECTED OCCUPATIONS

	GRADE LEVEL / SCHOOL			
OCCUPATION	GRADES 4-6	GRADES 7-9	ARMSTRONG HIGH SCHOOL	COOPER HIGH SCHOOL
Baker	+3	-3	-3	+5
Farmer	-10	+15	-6	+1
Secretary	-8	+4	+12	-9
Factory Worker	-17	-1	+5	+2
Teacher	-12	-6	+2	0
Doctor	0	0	0	-4
Minister	-3	+1	+3	-2
Truck Driver	-4	+6	+3	-7
Policeman	0	-12	-2	-10
Singer	8	-8	-3	-4
Ecologist	-17	-13	+4	-5

*For example, 3% more 4-6 grade students described the baker as rich on the post test than they had on the pre test

TABLE 2.6

A PRE-POST COMPARISON OF RESPONSES RELATED TO INTELLIGENCE (SMART) DESCRIPTORS OF SELECTED OCCUPATIONS

OCCUPATION	GRADE LEVEL / SCHOOL			
	GRADES 4-6	GRADES 7-9	ARMSTRONG HIGH SCHOOL	COOPER HIGH SCHOOL
Baker	0	-20	+4	0
Farmer	+4	-23	+5	+6
Secretary	-6	-17	-3	-7
Factory Worker	-8	-33	-9	+9
Teacher	-2	-23	0	-2
Doctor	-3	-6	0	-5
Minister	-9	-20	+13	0
Truck Driver	-6	-14	+2	+3
Policeman	-8	-15	+5	+1
Singer	-11	-13	-2	-2
Ecologist	-6	-18	+4	+6

TABLE 2.7

A PRE-POST COMPARISON OF RESPONSES RELATED TO SEX (MALE)
DESCRIPTORS OF SELECTED OCCUPATIONS

	GRADE LEVEL / SCHOOL			
OCCUPATION	GRADES 4-6	GRADES 7-9	ARMSTRONG HIGH SCHOOL	COOPER HIGH SCHOOL
Baker	-2	-3	-5	+6
Farmer	-4	-9	-4	-6
Secretary	-2	+1	+5	0
Factory Worker	-6	-13	0	+1
Teacher	+4	-3	+9	-1
Doctor	-5	-16	±4	-10
Minister	-1	-13	-1	+5
Truck Driver	+6	-20	-10	-3
Policeman	-11	-15	-3	-21
Singer	-4	-6	-1	+6
Ecologist	-15	+3	0	-6

TABLE 2.8

A PRE-POST COMPARISON OF RESPONSES RELATED TO IMPORTANCE (IMPORTANT) DESCRIPTORS OF SELECTED OCCUPATIONS

	GRADE LEVEL / SCHOOL			
OCCUPATION	GRADES 4-6	GRADES 7-9	ARMSTRONG HIGH SCHOOL	COOPER HIGH SCHOOL
Baker	0	-16	+4	+1
Farmer	-11	0	+5	+23
Secretary	-11	-9	0	+8
Factory Worker	+2	-15	+9	+7
Teacher	-2	-14	-4	-4
Doctor	-3	+1	-1	-5
Minister	-5	0	-2	+2
Truck Driver	-13	-18	-1	+3
Policeman	-2	-7	+3	+14
Singer	-6	-4	+6	-1
Ecologist	0	-8	+3	+17

TABLE 2.9

A PRE-POST COMPARISON OF RESPONSES RELATED TO EDUCATION (EDUCATOR) DESCRIPTORS OF SELECTED OCCUPATIONS

OCCUPATION	GRADE LEVEL / SCHOOL			
	GRADES 4-6	GRADES 7-9	ARMSTRONG HIGH SCHOOL	COOPER HIGH SCHOOL
Baker	-12	-4	+3	0
Farmer	-9	-4	+14	+1
Secretary	-5	-4	+1	-1
Factory Worker	-14	-11	+5	+3
Teacher	-4	-11	-5	-2
Doctor	-3	-1	-3	-6
Minister	-16	-11	-4	+3
Truck Driver	-4	-4	-4	-4
Policeman	-12	-9	+2	-5
Singer	-15	-6	-2	-6
Ecologist	-11	-8	+5	+3

members of the project staff. The evaluation team analyzed the data after it was prepared.

According to Table 2.4, junior high students changed in per cent of students agreeing with a particular statement on 12 of the 39 items on the inventory. The items for which responses changed were contained in each of the scales of the Inventory. Again, although there are no right or wrong responses, a number of the changes in attitude would not appear to be desireable. Changes in responses to items 1, 2, 3 and 5 on the attitudes toward work scale are among those that would appear to be contrary to project objectives.

Their changes in descriptions of characteristics were also, for the most part, to perceiving most occupations as less rich, intelligent, educated, etc. Of special interest is the fact that the post-test sample characterized all occupations as lower on the intelligence scale than did the pre-test sample. They were also less likely to associate occupations with being primarily for males than was the pre-test sample. It would be inappropriate to attribute these changes in attitude towards various occupation to project activities; however, it would seem that findings that indicate a pattern contrary to project objectives should be studied in more depth.

Tables 3.4 and 3.5.1 to 3.5.5 in the appendix contain summaries of responses to the junior high samples to the two parts of the Inventory. The test items on the Table 3.4 are referenced to the subscales of the attitudinal taxonomy used for construction of the instrument.

Evaluation Activity 3.4 - "Assess Senior High Career Exploration Programs"

The senior high version of the instrument was also given to randomly selected samples of students at both Cooper and Armstrong Senior High Schools. These are the two high schools which have career exploration programs. A total of about 100 students at each school were surveyed during each phase of the administration of the instruments. As noted in Table 2.4, the pre and post samples at Armstrong and Cooper Senior High Schools varied significantly (more than a 10 per cent change) on a number of the Inventory items. There appears to be no distinguishable pattern of the changes in per cent of agreement. Perhaps the most changes were in the Personal Job Preparedness scale for Cooper High School students when they changed on nine of the items. Most of the pre to post changes would appear to be consistent with project goals.

There were considerably fewer changes in associating various descriptors with occupations than there had been in the lower grade levels. The only significant changes in perceptions were that the Armstrong post-test sample saw secretaries as richer; ministers as more intelligent; truck drivers as more likely to be male and farmers to be more educated than did the pre test sample. Cooper students changed in that they perceived farmers, policemen, and ecologists as more important at the end of the project year.

Tables 3.6, 3.7.1 to 3.7.5, and 3.8 in the appendix contain the summaries of the responses to the instrument. The findings for the most part do not indicate discernable differences between Armstrong and Cooper students. Differences that appeared on the pre-test were no longer apparent on the post-

test. There was one notable exception to this finding, however. To the statement, "Working will probably be alot better than going to school", 36 per cent of Armstrong students in both pre and post samples and 73 per cent of Cooper students agreed.

Approximately the same per cent of students at each of the schools indicated that they had visited their Career Education Resource Centers. Fifty-four per cent (54%) at Armstrong indicated that they had, whereas, 57% at Cooper responded that they had. See Table 3.8 in the appendix regarding a summary of responses to Resource Center utilization.

SECTION III

SUMMARY AND RECOMMENDATIONS

3.1 Summary

The fiscal year two project activities for the Careers Project were on schedule and project objectives were met. Based upon meetings with the staff, site visits at each of the project schools, and review of the quarterly reports, it is the opinion of the evaluation team that the project was well managed and that project staff were generally familiar with and committed to project goals.

Although the elementary school program was multi-faceted, both in approach and content, the major concern was to expose students to the different careers or job clusters. By and large, this goal was achieved on the elementary level by relating classroom activities to the World of Work while drawing attention to the environment. At the junior high level, acquisition of construction skills and manufacturing skills served as the main thrust at two of the schools. Experts were utilized frequently as models of different job areas. Because speakers were drawn from a wide range of specific trades and professions, it indicated that every job was useful in its own right which helped to alleviate stereotype views and negative attitudes. Two of the senior high schools, Cooper and Armstrong, are using different approaches to provide students access to career information. Both appear to be having some degree of success. The Robbinsdale Senior High component is focused upon work experience students and should provide an excellent opportunity to

test career education concepts with a unique population.

The following specific findings are the result of the evaluation activities conducted by the evaluation team:

- In practice, career education and environmental education were taught as separate entities.
- Teachers were very supportive of the role of the central project staff and MESFI.
- Each school had established procedures for determining the number of participating students.
- All of the project strategies listed in the project goals document were implemented.
- When interviewed regarding the summer workshop experience, teachers rated experiential activities (e.g., shop experience) the highest.
- Twelve of the fourteen conditions of the expectations agreement were met by a majority of the teachers.
- Fifty-three teachers and about 1,250 to 1,500 elementary students were involved in the elementary school phase of the program.
- Community resource people were used to conduct discussions of various occupations and job clusters.
- Specific units were designed for each grade either by the Robbinsdale Schools or MESFI.
- Elementary teachers when interviewed expressed extremely positive attitudes toward the program.
- Over three-fourths of the Hosterman Junior High School students participated in some aspect of the program.
- Seventy-five Hosterman teachers have attended workshops related to the project.
- A total of about 900 students were involved in either usage of the Career Resource Center or related classroom units at Armstrong High School.
- Seventy-two students at Robbinsdale Senior High School who have had problems adjusting to the traditional school experience were in a unique careers program tailored to their needs.

- The Community Careers Center provided counseling for 457 clients (drop-outs and adults) during the past year.
- Over the year, primary (K-3) students made some significant changes in their awareness of occupations and relative educational requirements, salary levels, etc.
- Students were less likely to use extreme descriptors in describing selected occupations in regard to relative wealth, education, intelligence, etc. at the end of the project year.
- There were a number of significant changes in level of agreement with specific attitudinal statements regarding careers and the world of work; these changes, however, did not follow any discernable pattern.

3.2 Recommendations

On the basis of the on-site visits and the analyses of the in-service data, the expectation agreement data, and the pre-post attitudinal inventories, a number of recommendations were made. These recommendations relate primarily to project processes and should be considered for planning FY3 purposes. Many of these recommendations appeared in earlier reports and are still relevant.

The following recommendations are made by the evaluation team:

1) It is recommended that a management plan for the project be developed for FY3. The goal statements with the related objectives and strategies for each phase, do a good job of expressing what will be accomplished over the year. However, there is a need to identify with each of these strategies the person responsible for them and the timeline for their attainment.

2) It is recommended that more precise, behaviorally-stated objectives be stated for the project. This will allow for better comparative evaluation.

It would also provide for a more "results" oriented evaluation design plan.

3) It is recommended that project objectives related to the environmental studies dimension of the project be made more explicit. It is difficult to determine much project emphasis upon the environment or environmentally-related careers. In the initial proposal, there was much stress upon this aspect of the program. If, in fact, the intended careers orientation of the project is neither feasible or desireable, this should be noted.

4) It is recommended that subsequent in-service workshop sessions be experiential in nature. According to the in-service evaluation form analysis, participants reacted most positively and ranked most highly those activities which were participatory in nature.

5) It is recommended that attempts be made to collect and disseminate job placement information system-wide. It would appear that the dynamic nature of this information makes it difficult and inefficient for all three high schools to maintain separate inventories.

6) It is recommended that a clerk or aide be assigned to the Career Resource Center at Cooper High School. Because of the "extra" nature of the assignment, the level of commitment to this component of the project appears less than the other sites. It may be a difficult recommendation to implement, however, in light of the district-wide cut-backs in terms of instructional aides and other support staff.

7) It is recommended that consideration be given to funding writing teams for the career units for the various project components. It appears

that, based on the experience of the staff to date, that a number of schools would be in a good position to further integrate the career education concept into the regular curriculum. This would help insure a continuation of some of the project strategies once the outside funding source had been discontinued.

8) It is recommended that project staff be given an opportunity to do some intra-system visitation. In interviewing staff, it is surprising how little they knew about other phases of the project. Perhaps "show and tell" sessions at the regular staff meetings would help achieve this intercommunication.

9) It is recommended that there be more on-going in-service activity for elementary teachers. Many of these teachers, when interviewed, mentioned the need to meet with other teachers at the same grade level as well as with project staff on a more frequent basis. They also expressed the need for more specific class activity suggestions.

10) It is recommended that the pre and post instrumentation be modified to include more cognitive learning items related to career awareness, exploration and information. The emphasis in this year's instrument was upon affective learnings as they related to careers and the world of work. It was difficult to ascertain any effects regarding many of the project goals from the type of instrumentation which was used.

LIST OF TABLES

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Table 3.2 A Summary of Responses to An Inventory of Attitudes toward the World of Work and the Environment, Part I, By Grades 4 to 6 Students

Table 3.3.1 A Pre-Post Comparison of Responses Related to Wealth Descriptors of Selected Occupations by Grades 4 to 6 Students, Part II

Table 3.3.2 A Pre-Post Comparison of Responses Related to Intelligence Descriptors of Selected Occupations by Grades 4 to 6 Students, Part II

Table 3.3.3 A Pre-Post Comparison of Responses Related to Sex Descriptors of Selected Occupations by Grades 4 to 6 Students, Part II

Table 3.3.4 A Pre-Post Comparison of Responses Related to Importance Descriptors of Selected Occupations by Grades 4 to 5 Students, Part II

Table 3.3.5 A Pre-Post Comparison of Responses Related to Education Descriptors of Selected Occupations by Grades 4 to 6 Students, Part II

Table 3.4 A Summary of Responses to An Inventory of Attitudes toward the World of Work and the Environment, Part I, by Grades 7-9 Students

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TABLE 3.1

A PRE-POST COMPARISON OF RESPONSES TO AN INVENTORY OF ATTITUDES TOWARD THE WORLD OF WORK AND THE ENVIRONMENT, K-3
(n=60)

POLLUTION SECTION

1. (a) Does one of these cause noise pollution?

	Pre	Post
Yes	93%	98%
No	5%	2%
U	2%	-

(b) If yes, point to which picture shows pollution.

	Pre	Post
A	98%	100%
B	-	-
U	2%	-

2. (a) Does one of these pictures show pollution?

	Pre	Post
Yes	98%	98%
No	2%	2%

(b) If yes, point to which picture shows pollution.

	Pre	Post
A	97%	100%
B	3%	-

3. (a) Does one of these cause air pollution?

	Pre	Post
Yes	95%	94%
No	5%	6%

(b) If yes, which one?

	Pre	Post
A	18%	2%
B	82%	98%

4. (a) Does one of these pictures cause pollution?

	Pre	Post
Yes	83%	70%
No	17%	30%

(b) If yes, which one?

	Pre	Post
A	2%	3%
B	98%	97%

CAREER SECTION

5. (a) Are these men working?

	Pre	Post
Yes	60%	80%
No	40%	20%

(b) What do you think their job is?

	Pre	Post
Football	97%	88%
Other	-	10%
U	3%	2%

6. This lady is a housewife and a mother.

(a) Does she have a job?

	Pre	Post
Yes	83%	96%
No	15%	4%
U	2%	-

(b) If yes, does she get paid for her work?

	Pre	Post
Yes	32%	10%
No	68%	82%
U	-	8%

(c) Do you get paid for all jobs?

	Pre	Post
Yes	37%	5%
No	63%	94%
U	-	1%

7. These are two different families.

(a) Which family has the most money?

	Pre	Post
A	43%	27%
B	57%	73%

(b) Which father has the best job?

	Pre	Post
A	22%	12%
B	78%	88%

(c) Which family is the happiest?

	Pre	Post
A	83%	75%
B	13%	25%
U	4%	-

8. This man is a farmer.
This man is a doctor.

(a) Point to the man who has the most important job.

	Pre	Post
F	10%	2%
D	90%	98%

(b) Which man makes the most money?

	Pre	Post
F	37%	13%
D	58%	83%
U	5%	4%

9. (a) Does this man have a job?

	Pre	Post
Yes	63%	80%
No	37%	20%

(b) If yes, what is his job?

	Pre	Post
Artist	89%	95%
Other	8%	2.5%
U	3%	2.5%

(c) Does he have an important job?

	Pre	Post
Yes	44%	26%
No	47%	74%
U	9%	-

10. This man works in an office.
This man fixes cars.

(a) Which of these men had to go to college for his job?

	Pre	Post
A	63%	38%
B	37%	60%
U	-	2%

(b) Which one makes the most money?

	Pre	Post
A	33%	20%
B	67%	80%

(c) Which person has the best job?

	Pre	Post
A	17%	29%
B	78%	71%
U	5%	-

11. Could this lady be a:

(a) Doctor?

	Pre	Post
Yes	78%	65%
No	22%	30%

(b) Teacher?

	Pre	Post
Yes	92%	90%
No	8%	10%

(c) Bus Driver?

	Pre	Post
Yes	53%	62%
No	47%	38%

(d) Secretary?

	Pre	Post
Yes	90%	98%
No	10%	2%

TABLE 3.2

A SUMMARY OF RESPONSES TO AN INVENTORY OF ATTITUDES TOWARD THE WORLD OF WORK AND THE ENVIRONMENT PART I, BY GRADES 4 TO 6 STUDENTS (N=93)

	% AGREE PRE	% AGREE POST	% CHANGE
Attitudes Toward Work			
1. The only reason people work is for money.	39	25	-14
2. People feel good after working hard at their job.	45	53	+8
3. Liking what you do is the most important thing about a job.	84	83	-1
4. I don't care how much I get paid, but I hope to have an important job.	47	45	-2
5. Work is boring.	21	15	-6
6. Every grown-up wants a job.	39	17	-22
7. No one who is important gets his hands dirty at work.	7	11	+4
8. A person can be proud of any job he gets.	75	83	+3
9. The amount of money a person gets paid depends upon how important his job is.	54	54	0
10. Every job is necessary to our world in some way.	91	82	-9
11. A job where a person does a lot of thinking is more important than a job where a person works with his hands.	17	19	+2
Personal Job Preparedness			
1. I would like to know more about the jobs grown-ups have.	93	71	-22
2. School is a good place to find out about jobs.	65	62	-3
3. A person can get an important job even if he doesn't go to college.	60	48	-12

	% AGREE PRE	% AGREE POST	% CHANGE
4. It is important to talk about jobs before you get to high school.	77	74	-3
Knowledge of the World of Work			
1. In our country, everyone has to work.	13	3	-10
2. There are more jobs for men than there are for women.	62	45	-17
Environment			
1. Teachers should spend more time teaching about pollution.	62	44	-18
2. I should be able to buy pop in a can or a bottle.	85	80	-5
3. Students can help stop pollution by returning pop bottles to the store so they can be used again.	99	97	-2
4. The President is the only person that can make sure we have clean air and water.	3	1	-2
5. I want to know more about ecology.	78	82	+4
Environment & Careers			
1. We need forest rangers to protect our trees.	84	72	-12
2. People who make and sell cars seem to not care that cars cause pollution.	40	38	-2
3. Many companies have to be told not to pollute our air and water.	92	87	-5
4. Only scientists can help stop pollution	3	1	-2
5. Bus drivers should encourage people to ride buses because they help stop pollution.	22	45	+23
6. Farmers do not have to worry about how to use the land because we have so much of it.	10	3	-7
7. A housewife cannot do anything to help stop pollution.	4	5	+1
8. Every worker and student can do something to stop pollution.	98	96	-2

	% AGREE		%
	PRE	POST	CHANGE
9. Part of a policeman's job is to stop people from littering.	80	83	+3
10. Politicans can make laws about pollution but it will not help.	41	45	+4
11. Garbage men do important environmental work.	80	82	+2
12. We need water ecologists to make sure we always have water.	48	47	-1

TABLE 3.3.1

A PRE-POST COMPARISON OF RESPONSES RELATED TO
WEALTH DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 4 TO 6 STUDENTS
Part II, (n=92, 93)

OCCUPATION	Per Cent Responses					
	POOR			RICH		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	6	6	0	8	11	+3
Farmer	15	16	+1	35	25	-10
Secretary	1	2	+1	28	20	-8
Factory Worker	5	5	0	33	16	-17
Teacher	4	3	-1	32	20	-12
Doctor	0	0	0	82	82	0
Minister	7	3	-4	29	26	-3
Truck Driver	13	19	+6	23	19	-4
Policeman	0	1	-1	56	56	0
Singer	3	2	-1	79	87	8
Ecologist	1	1	0	55	38	-17

TABLE 3.3.2

A PRE-POST COMPARISON OF RESPONSES RELATED TO
INTELLIGENCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 4 TO 6 STUDENTS
Part II, (n=92, 93)

OCCUPATION	Per Cent Responses					
	STUPID			SMART		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	3	0	-3	65	65	0
Farmer	1	1	0	70	74	+4
Secretary	3	0	-3	95	89	-6
Factory Worker	3	3	0	74	66	-8
Teacher	6	3	-3	90	88	-2
Doctor	2	0	-2	98	95	-3
Minister	2	0	-2	77	68	-9
Truck Driver	15	17	+2	47	41	-6
Policeman	1	2	+1	95	87	-8
Singer	4	8	+4	62	51	-11
Ecologist	2	0	-2	92	86	-6

TABLE 3.3.3

A PRE-POST COMPARISON OF RESPONSES RELATED TO
SEX DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 4 TO 6 STUDENTS
Part II, (n=92, 93)

OCCUPATION	Per Cent Responses					
	MAN			WOMAN		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	53	51	-2	14	14	0
Farmer	96	92	-4	1	0	-1
Secretary	3	1	-2	95	95	0
Factory Worker	77	71	-6	1	1	0
Teacher	4	8	14	74	57	-17
Doctor	91	86	-5	2	0	-2
Minister	98	97	-1	0	0	0
Truck Driver	93	99	6	4	0	-4
Policeman	98	87	-11	0	1	1
Singer	14	10	-4	29	25	-4
Ecologist	60	45	-15	3	2	-1

TABLE 3.3.4

A PRE-POST COMPARISON OF RESPONSES RELATED TO
IMPORTANCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 4 TO 6 STUDENTS
Part II, (n=92, 93)

OCCUPATION	Per Cent Responses					
	IMPORTANT			NOT IMPORTANT		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	62	62	0	11	13	2
Farmer	93	82	-11	4	5	1
Secretary	82	71	-11	9	10	1
Factory Worker	72	74	2	11	5	-6
Teacher	89	87	-2	7	5	-2
Doctor	100	97	-3	0	0	0
Minister	77	72	-5	8	2	-6
Truck Driver	69	56	-13	9	14	5
Policeman	100	98	-2	0	0	0
Singer	29	23	-6	38	37	-1
Ecologist	86	86	0	1	1	0

TABLE 3.3.5

A PRE-POST COMPARISON OF RESPONSES RELATED TO
EDUCATION DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 4 TO 6 STUDENTS
Part II, (n=92, 93)

OCCUPATION	Per Cent Responses					
	EDUCATED			NOT EDUCATED		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	56	44	-12	13	9	-4
Farmer	40	30	-10	23	13	-10
Secretary	94	89	-5	3	3	0
Factory Worker	68	54	-14	9	4	-5
Teacher	95	91	-4	3	1	-2
Doctor	97	94	-3	2	0	-2
Minister	67	51	-16	12	4	-8
Truck Driver	35	31	-4	19	22	3
Policeman	94	82	-12	0	0	0
Singer	56	41	-15	18	16	-2
Ecologist	87	76	-11	1	1	0

TABLE 3.4

A SUMMARY OF RESPONSES TO AN INVENTORY OF ATTITUDES TOWARD THE WORLD OF WORK AND THE ENVIRONMENT PART I, BY GRADES 7-9 STUDENTS (N=99)

	% AGREE PRE	% AGREE POST	% CHANGE
Attitudes Toward Work			
1. The only reason people work is for money.	23	37	+14
2. People feel good after working hard at their job.	53	40	-13
3. Liking what you do is the most important thing about a job.	88	91	+3
4. I don't care how much I get paid, but I hope to have an important job.	30	24	-6
5. Work is boring.	11	22	+11
6. Every grown-up wants a job.	33	29	-4
7. No one who is important gets his hands dirty at work.	7	6	-1
8. A person can be proud of any job he gets.	76	67	-9
9. The amount of money a person gets paid depends upon how important his job is.	41	48	+7
10. Every job is necessary to our world in some way.	90	87	-3
11. A job where a person does a lot of thinking is more important than a job where a person works with his hands.	10	21	+11
12. Work will be more interesting than going to school.	59	56	-3
Personal Job Preparedness			
1. I know of lots of jobs I'd like to have.	77	72	-5
2. It is important to have explored a number of careers by the time you finish high school.	72	83	+11
3. I don't know how to go about getting the job I want.	48	56	+8
4. School is a good place to find out about jobs.	82	68	-14

	% AGREE PRE	% AGREE POST	% CHANGE
5. A person can get an important job even if he doesn't go to college.	74	78	+4
6. It is important to talk about jobs before you get to high school.	76	79	+3
7. Everyone is able to find a job that he will like.	40	38	-2
Knowledge of the World of Work			
1. In our country, everyone has to work.	12	17	+5
2. There are more jobs for men than there are for women.	43	57	+14
3. The average worker has more than one job in his lifetime.	84	80	-4
4. No one could know all of his job choices because new careers are created all the time.	80	66	-14
Environment			
1. Teachers should spend more time teaching about pollution.	30	40	+10
2. I should be able to buy pop in a can or a bottle.	81	85	+4
3. Students can help stop pollution by returning pop bottles to the store so they can be used again.	97	87	-10
4. The President is the only person that can make sure we have clean air and water.	6	9	+3
Environment and Careers			
1. We need forest rangers to protect our trees.	78	82	+4
2. People who make and sell cars seem to not care that cars cause pollution.	32	41	+9
3. Many companies have to be told not to pollute our air and water.	83	90	+7
4. Bus drivers should encourage people to ride buses because they help stop pollution.	44	49	+5

		% AGREE PRE	% AGREE POST	% CHANGE
5.	Only scientists can help stop pollution.	2	7	+5
6.	Farmers do not have to worry about how to use the land because we have so much of it.	8	11	+3
7.	A housewife cannot do anything to help stop pollution.	8	10	+2
8.	Every worker and student can do something to stop pollution.	92	91	-1
9.	Part of a policeman's job is to stop people from littering.	76	79	+3
10.	Politicians can make laws about pollution but it will not help.	28	46	+18
11.	Garbage men do important environmental work.	89	74	-15
12.	We need water ecologists to make sure we always have water.	74	73	-1

TABLE 3.5.1

A PRE-POST COMPARISON OF RESPONSES RELATED TO
WEALTH DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 7 TO 9 STUDENTS
Part II, (n=99)

OCCUPATION	Per Cent Responses					
	RICH			POOR		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	6	10	4	13	10	-3
Farmer	14	13	-1	12	27	15
Secretary	7	6	-1	18	22	4
Factory Worker	18	26	8	11	10	-1
Teacher	11	22	11	23	17	-6
Doctor	1	0	-1	81	81	0
Minister	16	13	-3	20	21	1
Truck Driver	25	28	3	6	12	6
Policeman	5	10	5	33	21	-12
Ecologist	3	5	2	46	38	-8
Singer	5	6	1	70	57	-13

TABLE 3.5.2

A PRE-POST COMPARISON OF RESPONSES RELATED TO
INTELLIGENCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 7 TO 9 STUDENTS
Part II, (n=99)

OCCUPATION	Per Cent Responses					
	STUPID			SMART		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	1	11	10	55	35	-20
Farmer	1	5	4	80	57	-23
Secretary	2	3	1	91	74	-17
Factory Worker	6	23	17	64	31	-33
Teacher	1	13	12	94	71	-23
Doctor	1	1	0	94	88	-6
Minister	1	6	5	77	57	-20
Truck Driver	16	27	9	33	19	-14
Policeman	1	3	2	87	72	-15
Ecologist	1	5	4	91	78	-13
Singer	8	19	11	49	31	-18

TABLE 3.5.3

A PRE-POST COMPARISON OF RESPONSES RELATED TO
SEX DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 7 TO 9 STUDENTS
Part II, (n=99)

OCCUPATION	Per Cent Responses					
	MAN			WOMAN		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	47	44	-3	12	7	-5
Farmer	90	81	-9	1	0	-1
Secretary	1	2	1	39	29	-10
Factory Worker	68	55	-13	2	4	2
Teacher	18	15	-3	24	23	-1
Doctor	79	63	-16	1	0	-1
Minister	93	80	-13	1	3	2
Truck Driver	96	76	-20	0	0	0
Policeman	90	75	-15	0	0	0
Ecologist	47	41	-6	3	0	-3
Singer	10	13	3	19	20	1

TABLE 3.5.4

A PRE-POST COMPARISON OF RESPONSES RELATED TO
IMPORTANCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 7 TO 9 STUDENTS
Part II, (n=99)

OCCUPATION	Per Cent Responses					
	IMPORTANT			NOT IMPORTANT		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	70	54	-16	10	10	0
Farmer	92	92	0	4	0	-4
Secretary	79	70	-9	6	7	1
Factory Worker	84	69	-15	2	6	4
Teacher	93	79	-14	3	12	9
Doctor	95	96	1	1	0	-1
Minister	80	80	0	6	3	3
Truck Driver	75	57	-18	6	16	10
Policeman	96	89	-7	2	3	1
Ecologist	85	81	-4	1	3	2
Singer	42	34	-8	24	27	3

TABLE 3.5.5

A PRE-POST COMPARISON OF RESPONSES RELATED TO
EDUCATION DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 7 TO 9 STUDENTS
Part II, (n=99)

OCCUPATION	Per Cent Responses					
	EDUCATED			NOT EDUCATED		
	Pre	Post	Diff.	Pre	Post	Diff.
Baker	52	48	-4	18	11	-7
Farmer	54	50	-4	18	24	6
Secretary	93	89	-4	3	1	-2
Factory Worker	53	42	-11	16	28	12
Teacher	96	85	-11	2	8	6
Doctor	97	96	-1	1	0	-1
Minister	77	66	-11	7	6	-1
Truck Driver	31	27	-4	27	33	6
Policeman	91	80	-9	2	3	1
Ecologist	88	82	-6	1	5	4
Singer	42	34	-8	13	22	9

TABLE 3.6

A SUMMARY OF RESPONSES TO AN INVENTORY OF ATTITUDES
TOWARD THE WORLD OF WORK AND THE ENVIRONMENT
PART I, BY ARMSTRONG AND COOPER STUDENTS
(N=208)

	ARMSTRONG			COOPER		
	% Agree		%	% Agree		%
	Pre	Post	Diff	Pre	Post	Diff
Attitudes Toward Work						
1. Making sure that you get paid a lot of money is more important than liking your job.	4	5	+1	3	3	0
2. People feel satisfied after working hard at their job.	73	85	+12	76	88	+12
3. I will choose an occupation which allows me to do what I believe in.	92	87	-5	55	94	+29
4. If I have an important job, the amount of money I earn doesn't matter very much.	41	36	-5	66	43	-23
5. In our country, everyone should work.	52	53	+1	33	42	+9
6. Working will probably be a lot better than going to school.	32	44	+12	76	70	-6
7. I am not looking forward to working.	19	17	-2	12	31	+19
8. Your job is important mainly because it determines how much you can earn.	21	24	+3	24	15	-9
9. A job where a person does a lot of thinking is usually more important than a job where a person works with his hands.	16	13	-3	14	4	-10
10. The work I do in school has little to do with the jobs I may have after high school.	52	53	+1	75	52	-23
11. School helps me to know myself better.	63	68	+5	52	45	-7
Personal Job Preparedness						
1. A consideration of what you are good at is more important that what you like in choosing an occupation.	27	26	-1	24	30	+6
2. School is a good place to find out about careers.	73	77	+4	64	46	-18

	ARMSTRONG			COOPER		
	% Agree		%	% Agree		%
	Pre	Post	Diff	Pre	Post	Diff
3. I am not oing to decide upon an occupation because the future is so uncertain.	23	26	-3	28	33	+5
4. My parents have a lot of ideas about what career I should choose.	30	30	0	24	27	+3
5. It is important to have explored a number of careers by the time you finish high school.	78	82	+4	90	76	+14
6. No one in my school has been designated to help me find out about careers.	33	37	+4	34	22	-12
7. In making an occupational choice, you need to know what kind of person you are.	90	93	+3	52	93	+41
8. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.	24	22	-2	45	25	-20
9. Because of school influences, I know more about my interests and abilities than I knew last year.	59	60	+1	74	58	-26
10. I hope to receive more career information in classes this year.	81	57	-14	66	51	-15
11. I have no idea what kind of job I want.	19	29	+10	13	22	+9
12. You get into a career mostly by chance.	5	18	+13	21	31	+10
13. There are persons in this school who will help me learn about careers.	81	82	+1	53	69	+16
14. A person has to have a college degree to get an important job.	19	22	+3	39	18	-21
15. We rarely talk about careers in my classes.	73	69	-4	50	37	-13
Knowledge of the World of Work-						
1. Once you choose a job, it is still likely that you will change to another one sometime later.	73	84	+11	64	82	+18
2. In our country, most people can find jobs they will like.	42	54	+12	32	46	+14
3. Every legal job is necessary and dignified in some way.	55	69	+14	46	72	+26
4. It is probably just as easy to be successful in one occupation as it is in another.	23	34	+9	20	33	+13

	ARMSTRONG			COOPER		
	% Agree		%	% Agree		%
	Pre	Post	Diff	Pre	Post	Diff
5. We have unemployment in this country because there are not enough jobs for everybody.	47	52	+5	74	42	-32
Environment						
1. Teachers in my school should spend more time teaching about ecology.	25	38	+13	37	37	0
2. We should have strong legislation to protect our natural resources.	92	91	-1	67	88	+21
3. The President can make sure we have clean air and water.	27	21	-6	17	31	+4
4. Most of my friends don't care if they pollute our air and water.	41	39	-2	59	40	-19
5. Many companies have to be told by the courts not to pollute our air.	86	87	+1	45	85	+40
6. People should be encouraged to ride buses because they help stop pollution.	53	63	+10	37	54	+17
7. We need not worry about how we use the environment because natural processes restore it.	4	3	-1	43	9	-34
Environment & Career						
1. People who make and sell cars do not seem to care that cars cause pollution.	36	40	+4	60	39	-21
2. Only ecologists can stop pollution.	3	5	+2	2	1	-1
3. We don't need water ecologists because we will always have water.	4	1	-3	15	7	-8
4. Politicians can make laws about pollution but it will not help.	20	25	+5	56	33	-23
5. A housewife can do little to help stop pollution.	7	5	-2	40	1	-39
6. If I worked for a company that carelessly polluted a river, I would work to change its policies.	82	76	-6	88	75	-13

TABLE 3.7.1

A SUMMARY OF RESPONSES RELATED TO
WEALTH DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 10 TO 12 STUDENTS
Part II, (n=208)

OCCUPATION	Per Cent Responses											
	ARMSTRONG						COOPER					
	POOR			RICH			POOR			RICH		
	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.
Electrician	4	4	0	50	47	-3	1	4	3	59	64	5
Cattle Rancher	6	11	5	48	42	-6	7	7	0	38	39	1
Secretary	17	17	0	12	27	12	17	16	-1	16	7	-9
Factory Worker	48	57	9	3	8	5	45	38	-7	2	4	2
Teacher	24	28	4	13	15	2	13	13	0	22	22	0
Doctor	3	3	0	93	93	0	0	0	0	92	88	-4
Minister	28	29	1	9	12	3	21	20	-1	15	13	-2
Ecologist	23	29	6	7	10	3	13	11	-2	18	11	-7
Police Officer	27	28	1	10	8	-2	22	16	-6	17	7	-10
Accountant	11	11	0	39	36	-3	3	5	2	43	39	-4
Garbage Collector	35	32	-3	28	32	4	34	23	-9	19	14	-5

TABLE 3.7.2

A SUMMARY OF RESPONSES RELATED TO
INTELLIGENCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 10 TO 12 STUDENTS
Part II, (n=208)

OCCUPATION	Per Cent Responses											
	ARMSTRONG						COOPER					
	STUPID			SMART			STUPID			SMART		
	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.
Electrician	1	3	2	82	86	4	0	0	0	81	81	0
Cattle Rancher	9	7	-2	50	55	5	4	4	0	55	61	6
Secretary	8	13	5	71	68	-3	4	9	5	75	68	-7
Factory Worker	33	41	8	18	9	-9	26	21	-5	18	29	9
Teacher	13	18	5	77	77	0	6	11	5	73	71	-2
Doctor	2	4	2	94	94	0	0	3	3	95	90	-5
Minister	10	4	6	63	79	13	2	5	3	64	64	0
Ecologist	4	1	-3	86	88	2	1	3	2	78	81	3
Police Officer	7	11	4	58	63	5	11	11	0	50	51	1
Accountant	6	4	-2	79	81	2	0	0	0	85	83	-2
Garbage Collector	35	45	10	12	16	4	33	33	-	7	13	6

TABLE 3.7.3

A SUMMARY OF RESPONSES RELATED TO
SEX DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 10 TO 12 STUDENTS
Part II, (n=208)

OCCUPATION	Per Cent Responses											
	ARMSTRONG						COOPER					
	MAN			WOMAN			MAN			WOMAN		
	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.
Electrician	97	92	-5	0	1	1	87	93	6	0	0	0
Cattle Rancher	94	90	-4	1	1	0	88	82	-6	0	0	0
Secretary	2	7	5	93	89	-4	0	0	0	95	91	-4
Factory Worker	53	53	0	9	11	2	41	42	1	17	11	-6
Teacher	34	43	9	19	6	-13	37	36	-1	15	14	-1
Doctor	86	90	4	1	3	2	80	70	-10	0	0	0
Minister	94	93	-1	0	2	2	97	82	5	0	0	0
Ecologist	49	39	-10	1	4	3	38	35	-3	4	4	0
Police Officer	90	87	-3	1	4	3	89	68	-21	0	0	0
Accountant	59	58	-1	6	8	2	49	55	6	14	10	-4
Garbage Collector	97	97	0	1	1	0	92	86	-6	0	2	2

TABLE 3.7.4

A SUMMARY OF RESPONSES RELATED TO
IMPORTANCE DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 10 TO 12 STUDENTS
Part II, (n=208)

OCCUPATION	Per Cent Responses											
	ARMSTRONG						COOPER					
	IMPORTANT			NOT IMPORTANT			IMPORTANT			NOT IMPORTANT		
	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.
Electrician	88	92	4	0	1	1	89	90	1	1	2	1
Cattle Rancher	77	82	5	6	6	0	67	90	23	11	0	-11
Secretary	75	75	0	6	13	7	70	78	8	10	10	0
Factory Worker	54	63	9	30	25	-5	54	61	7	21	13	-8
Teacher	85	81	-4	9	14	5	84	80	-4	6	12	6
Doctor	98	97	-1	1	1	0	98	93	-5	0	0	0
Minister	83	81	-2	5	6	1	72	74	2	8	7	-1
Ecologist	91	90	-1	3	1	-2	87	91	3	1	0	-1
Police Officer	89	92	3	6	3	-3	83	77	14	6	7	1
Accountant	72	78	6	8	7	-1	72	71	-1	9	9	3
Garbage Collector	76	79	3	16	13	-3	64	81	17	17	5	-12

TABLE 3.7.5

A SUMMARY OF RESPONSES RELATED TO
EDUCATION DESCRIPTORS OF SELECTED OCCUPATIONS BY GRADES 10 TO 12 STUDENTS
Part II, (n=208)

OCCUPATION	Per Cent Responses											
	ARMSTRONG						COOPER					
	EDUCATED			NOT EDUCATED			EDUCATED			NOT EDUCATED		
	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.	Pre	Post	Diff.
Electrician	87	90	3	6	2	-4	84	84	0	0	2	2
Cattle Rancher	25	39	14	29	22	-7	17	24	1	34	24	-10
Secretary	85	86	1	4	8	4	92	91	-1	2	2	0
Factory Worker	9	14	5	54	58	4	10	13	3	45	33	-12
Teacher	92	87	-5	6	12	6	94	92	-2	1	2	1
Doctor	99	96	-3	0	1	1	99	93	-6	0	0	0
Minister	81	77	-4	6	10	4	68	71	3	1	7	6
Ecologist	85	81	-4	5	1	-4	83	79	-4	0	0	0
Police Officer	65	67	2	11	12	1	65	60	-5	6	14	8
Accountant	89	87	-2	2	1	-1	94	88	-6	0	2	2
Garbage Collector	10	15	5	51	55	4	7	10	3	52	40	-12

TABLE 3.8

A SUMMARY OF RESPONSES TO AN INVENTORY OF ATTITUDES TOWARD THE WORLD OF WORK AND THE ENVIRONMENT PART III, BY ARMSTRONG AND COOPER STUDENTS
(n=208)

Item	ARMSTRONG			COOPER		
	Yes	No	No Resp.	Yes	No	No Resp.
Have you ever visited the Career Education Resource Center?	54	42	4	57	41	2
Did the Resource Center help you?	42	44	14	38	50	12
Did the Resource Center provide appropriate advice and answer your questions?	40	46	14	40	46	14
Did the Resource Center provide appropriate materials for you?	49	37	14	40	45	15
If you have visited the Resource Center, could you write a few sentences about why you went and what you found out?	44	22	34	34	27	39

Table 3.9

SUMMARY OF PROGRAM INFORMATION FROM CE/EE ELEMENTARY SCHOOL INTERVIEWS

SCHOOL/TEACHER (GRADE LEVEL)	# OF STUDENTS	MAJOR TASKS	CONSULTANTS	MATERIALS/EQUIPMENT	PROGRAM COMPONENTS	TIME	COMMENTS
Sunny Hollow							
Teacher A (4)	26 (+ team 26)	1. Bring in career people for exposure 2. Relate classroom activities to the World of Work	Envir. Sci. Center Indus. Arts Person Parent job visitation	woodwork tools, workbench	Curriculum Guide - 4th grade Man & His Environment	2 hr/week	Some field trips Little impact on school Worthwhile Should be school-wide program incl. economics
Teacher B (5)	25	1. Acquaint students/ variety of occup. & careers for better life 2. Create more of an awareness of the environment	Envir. Sci. Center	woodwork tools, otherwise minimal	Special units - Trash is Taking Over Handbook on Occupational Information	Spread thru various lessons	Allows for reinforcement of written & oral skills. Should be available in all grades Worthwhile
Teacher C (6)	25	1. Exposure to different vocations 2. Opportunity to explore problems in World of Work	Envir. Sci. Center	work table & tools AV material used when available on given topic	Interdisciplinary - envir., vocational, indus. arts units: Urban Streams/Urban Life	1 hr/week	Emphasis - problem-solving skills Little impact on school Worthwhile
Teacher D (2)	25 (team 125)	1. Teach units of work developed & provided by Envir. Sci. Center		woodwork tools unit on lumbering	Awareness of people in World of Work Experience in woodwork 2nd grade unit - Seeds to Cereals	1 hr/week for 14 weeks	Creates greater awareness More realistic Change in soc. studies program Used only 1st semester

continued

SCHOOL/TEACHER (GRADE LEVEL)	# OF STUDENTS	MAJOR TASKS	CONSULTANTS	MATERIALS/EQUIPMENT	PROGRAM COMPONENTS	TIME	COMMENTS
Pilgrim Lane							
Teacher A (3)	39 team	1. Awareness of different careers 2. Involvement in site visits	Representatives of various job clusters & fields	filmstrip, workshop, weather equipment	Interest children in careers - ones diff. from the usual Units: Wind, Snow, Ice Field trips		Emphasis on activity for learning Greater independence by students while learning EE not stressed Workshop not meaningful (summer)
Teacher B (1)	28 (+ 28 team)	1. Teaching units of work 2. Broadening of horizons thru discussion of careers	Aide assigned to work in woodwork area	woodwork tools, cassettes and pictures	Awareness of jobs not requiring college Squirrel Unit - ecology	1 hr/week for 4 weeks (fall) 1 hr/week woodwork	Attitude of teachers changed thru exposure to new occup. No attempt to combine CE/EE
Teacher C (5)	60 (team)	1. Bring in speakers 2. Create student interest 3. Follow-up on activities	Pilot, Stewardess, engineer	woodwork tools	Follows 5th grade curriculum Units: Nutrition, Pollution, Law	30 min. daily	Value in children studying their own environ. Personal exper. rather than textbooks Estab. respect for various occup.
Teacher D (6)	100 (5 teachers, team)	1. Contacting persons 2. Setting up materials 3. Infroming parents & students	Representatives of various job clusters for special prog. EASE-IN	woodwork tools, art media	Awareness of available careers broadens their conception of the world	30-45 min. daily integ. into a.m.	Special sessions held wkly. for student exposure to various topics - CE/EE incorp. into that prog. Small interest groups in spring Workshop not too valuable

continued

(3 of 4)

SCHOOL/TEACHER (GRADE LEVEL)	# OF STUDENTS	MAJOR TASKS	CONSULTANTS	MATERIALS/EQUIPMENT	PROGRAM COMPONENTS	TIME	COMMENTS
Northport							
Teacher A (K)	50 (a.m. & p.m.)	1. Acquaint child with occupations 2. Show job parents are doing	carpenters, policeman, fireman, housewife	woodwork tools	Units: family life & expands it to correlate with CE, emphasis on what job is & its requirements	1 hr/week	CE & EE are not being integrated but will study pollution, overcrowding, animal tracks, plants
Teacher B (4)	25 (+ 24 team)	1. Deciding on study projects & places for site visits	staff, Envir. sci. center, Jim Hutton	woodwork tools	Awareness of kinds of careers & jobs Change attitudes & remove stereotypes about various jubs	dependent upon activity	More students would like to be involved - will include them if time allows Important for students to be active Awareness of environ. problems
Teacher C (3)	24 (+ all 3rd graders)	1. Teaching Units: Wind, Ice, Snow salt eliminated 2. Arrange for speakers on careers	Dental Hygienist artist, occupational therapist		Units form basis for program	2-3 wks. on each unit	Unable to blend CE and EE Money wasted on workshop; stipend would have taught it anyway
Teacher D (6)	50 (team)	1. Expose students to various occup. & why people enter certain fields	chief of police, rock collector, electrician, photographer	woodwork tools	Units provided from Envir. Sci. Center blended into regular program Emphasis on community	1½-2 hr/week	EE not stressed Tend to stress activities with most personal appeal Students show attitudinal awareness about some jobs
New Hope							
Teacher A (2)	27(+83, all 2nd graders)	1. Teach unit, Seed to Cereal 2. Arrange field trips 3. Arrange for resource persons	actor, fireman, baker, General Mills rep.	movies, film-strips, books, tapes	Units: From Seeds to Cereal, Community Helpers Information on various jobs	2-3 days/ week for month throughout yr	EE stressed Field trips and speakers enjoyed by students Students aware of job varieties

continued

(4 of 4)

SCHOOL/TEACHER (GRADE LEVEL)	# OF STUDENTS	MAJOR TASKS	CONSULTANTS	MATERIALS/EQUIPMENT	PROGRAM COMPONENTS	TIME	COMMENTS
Teacher B (3)	25	1. Teach Units: Ice, wind, snow	Mayor, staff of Envir. Scl. Center	woodwork tools	Social science program forms basis but awareness of persons in various job areas created	3 days/wk. for 45 min.	Difficulty in teaching units due to weather & time. Careers not stressed before. Project fits into regular s.s. Workshop helpful
Teacher C (4)	49 (team)	1.Create awareness of possibility of jobs	rock collector, jeweler, photographer, nutritionist	woodwork tools	Man and His Environment forms basis Activities on city building, traffic survey, surveys of people and their jobs	30 min/wk	Elem. program has always included CE, but indirectly; the project has made it more direct EE is taught through unit
Teacher D (5)	24	1. To instill positive attitude about careers within the curriculum	Jim Klobuchar, printer, photographer	tape recorder	Units: Minnows, Litter and Trash		Taught units before but not very effective. CE provides motivation, makes school more relevant to students. More interest in attitudes toward work. Will do conservation unit with 3 day visit to Long Lake

LIST OF EXHIBITS

Exhibit A Major Project Goals

Exhibit B Evaluation of Workshop Form

Exhibit C Expectations Agreement Checklist

EXHIBIT A

Exemplary Vocational Education Program Based on Environmental Studies K - 14

MAJOR PROJECT GOALS

1. Create a systematic manner of delivering career education relative to environmental education to school students, K - 14.
2. Develop a system of assisting high school dropouts and other out of school residents in making mature career decisions.
3. Disseminating career education concept to other schools by using model working examples.

Elementary Phase Objective

1. The principal instructional mode will be experiential.
2. C.E. and E.E. concept will be integrated in curriculum of selected schools.
3. Curriculum activities will reflect an emphasis on learning rather than teaching.

Junior High Phase Objective

1. Establish career exploration on one-to-one individual student.
2. Relate Career Education & E.E. problems on personal, family and community basis to subject areas.
3. Encourage Industrial Education teachers to accept concept of career related skills.

Senior High Phase Objectives

1. A. Provide a ready access to career information.
   B. Active assistance in the assimilation process for making a career decision.
2. Coordinate W.E. and environment career awareness.
3. Provide job placement info. entry-level and part-time.

CCCPhase Objectives

1. Extend Career Guidance function to out of school reside
2. Offer job placement assistance to dropouts and others.

Elementary Phase Strategies

1. A. Elementary teachers in-service workshop which models experienced learning style.
   B. Provide experiential learning activities for teachers in the in-service workshop.
2. Provide experienced environmental/career units for project teachers.
3. A. Evaluate students' performance with relation to C.E. and E.E. attitudes and awareness.
   B. Publicize the results of the evaluation.

Junior High Phase Strategies

1. Pupil Potential Labs for career information/exploration.
2. Incorporate Family Model simulation into 7th grade curriculum.
3. Finance World of Construction, & World of Work in JHS I.E.

Senior High Phase Strategies

1. Establish Career Resource Center at AHS.
2. Initiate Career Environmental relationship with W.E. coordinator at RHS.

CCC PHase Strategies

1. Establish CCC office outside scho
2. Develop job placement program.

MAJOR INSTRUCTIONAL GOALS

Teachers will have:

1. Positive attitudes toward environmental career education.
2. Integrating environmental career education in school curriculum in a systematic manner.

Elementary Phase Objectives

1. Integrate E.E. awareness into curriculum.
2. Integrate Career Education concept awareness into curric.
3. Use experiential teaching methods.
4. Teachers will adopt a teaching style that takes into account individual learning style of students.
5. Teachers will respect the feelings and opinions of students.

Junior High Phase Objectives

1. Use system to deliver career exploration & relate to subject.
2. Relate Environmental/career to familiar family situations, (personal).
3. Gain positive attitudes toward World of Const. & Manuf. concept as related to I.E.

Senior High Phase Objectives

1. Offer complete career info. to students
2. Investigate concepts and develop relations between W.E. & E.E.
3. Develop job placement service for H.S. students.

CCC Phase Objectives

1. Implement method of providing career guidance to out-of-school youth.
2. Implement methods of assisting dropouts obtain jobs.

Elementary PHase Strategies

1. Use E.E. units provided by MeSFI.
2. Use E.E. units as vehicle to bridge to careers education from curriculum.
3. Units require experiential teaching methods.
4. Product evaluation will test student performance.
5. Give teacher personal experience in valuing - as model.

Junior High Phase Strategies

1. In-service - involvement developing with Career Info. directory of HJHS people
2. Write Family Model simulation for Interdisciplinary relations in-service, publicize for voluntary use.
3. Teach World of Construction & World of Manufact. at Jr. High level.

Senior High Phase Strategies

1. A. Maintain & organize career & educational information for student use.
   B. Schedule students in interest groups.
   C. Invite teachers to assist subject area relationship to careers.
2. Incorporate environment ed. to W.E. exp. in systematic manner.
3. A. Advertize to employers.
   B. ~~And~~ Invite registration ~~to~~ list entry level openings.

CCC Phase Strategies

1. Coordinate with H.S. guidance systems a method for dropouts at time of leaving school.
2. A. Invite employers to register jobs.
   B. Publicize services.

MAJOR STUDENT GOALS

1. Elicit positive attitude toward the environment as evidenced by behavior related to career decisions.
2. Effect mature career decisions based on personal interests, individual abilities and realities of World of Work.

Elementary Phase objectives

1. Be able to recognize interrelatedness of environmental events.
2. Be able to recognize the influence which are brought to bear on environmental decisions.
3. Be able to recognize the importance of influences brought to bear on career decisions.

Junior High Phase Objectives

1. Expand students' knowledge of occupational opportunities.
2. Add depth to students' ecological awareness in relation to academic areas and career opportunities in the community.

Senior High Phase Objectives

1. Use wealth of readily available career information for decision making.
2. Use available expertise in career education for all levels of school system.
3. Gain positive environmental awareness of E.E. decision through career relation experience.

CCC Phase Objectives

1. Extend school district's obligation to provide career/education information to community including dropouts and other out-of-school residents.
2. Provide job placement assistance to residents.
3. Provide career information to most in need dropouts.

Elementary Phase Strategies

1. Environmental units in the field, out o. school in community.
2. Opportunity to reach personally to career education situation. i.e. resources field trips.
3. Personalize, internalize experience related to career decisions.

Junior High Phase Strategies

1. A. Use of directory of people in the school and community willing to share career information.
   B. Deliver career information through PUPIL POTENTIALS LABS.
2. A. Relate to academic areas through Family Model environmental/career interdisciplinary simulation.
   B. World of Work, World of Construction, class experience.

Senior High Phase Strategies

1. Operate Career Resource Center.
2. Coop Work Coordinators operate as resource persons to other disciplines, and other school levels.
3. Work experience coordinators concentrate on environmentally related entry level career impact.

CCC Phase Strategies

1. A. Establish Center where & when help is readily available through visits or calls.
   B. Operate evening school for credit.
2. Offer job placement assistance to dropouts.
3. Survey resident and business community needs for planning.

EXHIBIT B

Evaluation of Workshop (August 21-25, 1972)

In order that we might set up some preferences for future workshops, would you please rank the various activities you have been involved in during the past week.

Rank 1 - 8 (One is something you found most valuable)

_____ Resource Poeple
Carroll Vomhof-Community Resources Director
Cliff Helling-281 Vocational Education Director
Entomologist and Rock Collector

_____ Current Problems Examination
Small group and large group sessions

_____ Unit Work
Minnows-Insects-Litter

_____ Values Clarification
Discussion and Activities (Electrical Appliances, Name Tag, Here and Now)

_____ Shop Experience with Dennis Olson and Roy Seitz

_____ Grade Level Meetings
Examining Units of Study and Sharing Ideas

_____ Career Game
Interviewing each other to develop career clusters
Practicing job interviewing techniques on each other

_____ Audio-visual presentation (last year's program)

List things you would like to see more of in future meetings:

What type of things do you expect to engage in with your students in the classroom this year?

Date:

EXHIBIT C

CAREERS PROJECT

Expectations Agreement Checklist

Yes No 1. Did you use two resource people in your classroom during the year?

Yes No 2. Did you conduct one career related field trip during year?

Yes No 3. Did you relate career education and environmental awareness to all disciplines in a deliberate way at least twice in the year?

Yes No 4. Did you spend a minimum of five hours on each career/environment unit?

Yes No 5. Did you establish a Career Development group in your building and meet twice a semester to exchange ideas and offer support?

Yes No 6. Did you invite someone (teacher) into your classroom during environmental education and/or career education activities at least once a semester?

Yes No 7. Did you get students involved in an environmental care activity once during the year?

Yes No 8. Did you engage the class in some shopwork activity after becoming familiar and comfortable with tools and procedures through assistance of Industrial Arts Consultant?

Yes No 9. Did you receive $25.00 per day, honorarium for five-day summer in-service workshop.

Yes No 10. Did you receive planning assistance for units?

Yes No 11. Did you receive aid through help and support for project activities?

Yes No 12. Did you receive assistance in arranging for materials and supplies for units?

Yes No 13. Did you receive financial support for related field trips?

Yes No 14. Did you receive experience in developing a career education concept in the elementary school?